

ABSTRACT OF THE DISCLOSURE

A coherent light source includes a two-electrode laser diode provided with an active region having an active layer that emits light due to injection of a current, and a phase control region that has a layer that is disposed contiguous with the active layer and in which a change in refractive index is caused by injection of current, and an optical waveguide device in which a DBR (distributed Bragg reflector) region is formed. Laser light that is emitted from the two-electrode laser diode is optically coupled into an optical waveguide of the optical waveguide device, and a portion of the laser light that is emitted from the two-electrode laser diode is reflected by the DBR region and returned to the two-electrode laser diode, thereby locking an oscillation wavelength. Since it is not necessary to form a DBR region on the laser diode, stable wavelength control and modulation control can be achieved at low cost.